Infrared (IR) sensor

This project and its circuit are one of the most basic and popular sensor modules. In electronics, this sensor is analogous to human’s visionary senses which can be used to detect an obstacle which is one of its common applications. In robotics, a group of such modules are used so that a robot can follow a line pattern.

DESCRIPTION:

The transmitter part of the sensor project is an Infrared (IR) Led which transmits continuous IR rays to be received by an IR receiver. The output of the receiver varies depending upon its reception of IR rays. Since this variation cannot be analyzed as such, therefore this output can be fed to a comparator. Here operational amplifier (op-amp) of LM 339 is used as comparator.

When the IR receiver does not receive signal the potential at the inverting input goes higher than that that at non-inverting input of the comparator (LM 339). Thus the output of the comparator goes low and the LED does not glow .When the IR receiver receives signal the potential at the inverting input goes low. Thus the output of the comparator (LM 339) goes high and the LED starts glowing. Resistor R1 (100), R2 (10k) and R3 (330 ) are used to ensure that minimum 10 mA current passes through the IR LED, photodiode and normal LED, respectively. Resistor VR2 (preset=5k) is used to adjust the output. Resistor VR1 (preset=10k) is used to set the sensitivity of the circuit. Read more about IR sensor here.

BLOCK DIAGRAM:

